

PHASE II SUBMISSION INSTRUCTIONS FOR SBIR AND STTR FY 2002 PHASE I AWARDEES

GENERAL INFORMATION

Introduction

In order to request further SBIR or STTR funding for the research begun under Phase I, a Phase II grant application must be submitted in accordance with the following instructions. Applications for Phase II must be received no later than 5:00 p.m. Eastern Standard Time on April 23, 2003. An application for Phase II funding must be submitted during this current review cycle to be eligible for Phase II funding, and may be neither submitted at a later date nor resubmitted if not selected. Modifications to applications will be accepted if received by the application deadline. Any such modifications should be clearly marked as such.

Phase II Funding

SBIR Phase II grant awards are expected to be in amounts up to \$750,000.

STTR Phase II grant awards are expected to be in amounts up to \$500,000. However, STTR grantees may attach to their grant applications an expansion of their Phase II scope of work that may exceed the \$500,000 limit, up to a maximum total project amount of \$750,000. The attachment must identify specific additional tasks in support of their Phase II research objectives. These tasks should be described in the same detail as the base grant application and include a budget page showing the incremental costs of the additional work proposed. The DOE will review expanded-scope projects using its existing review process and schedule. The DOE will fund incremental work proposed based on the availability of funds.

Applicants should be aware that the Department reserves the right to adjust the amount of an award (up or down) from that proposed, depending on budget constraints and programmatic priorities. In such cases, the applicant will be asked to modify the scope of work to reflect the adjusted budget.

Phase II Cost Strategies

The purpose of Phase II is to perform the research and development required to meet the DOE objectives stated in the technical topic of the Phase I program solicitation. In addition, it is intended that the small business grantee would be in a position to pursue commercial applications of the R&D at the end of Phase II. In many cases, Phase II results in a prototype product or a working process that can be demonstrated to a potential investor or customer (either in the private sector or in the Federal government, including the Department of Energy).

Accordingly, the Phase II grant application should propose a level of effort consistent with these objectives. That is, the cost should be guided by the work required to accomplish the purpose of

Phase II as stated above. In the past, most Phase II applications proposed a level of effort at or near DOE's upper limit. Although there is no lower limit, the DOE has funded Phase II grant applications as low as \$250,000 in the recent past.

Applicants should also be aware that, due to the limited availability of funding, the chances of being selected for a Phase II award may decrease as the grant application budget increases. Although Phase II awards are not apportioned directly by technical topic,

considerations of a typical topic can serve to illustrate this point:

A technical topic yields approximately five Phase I awards. Since, on the average, approximately \$1.5 million is available to fund Phase II awards in each topic, the Department could award two grant applications at \$750,000 each. Therefore, if all five Phase I awardees submitted Phase II grant applications for \$750,000, the chances of winning Phase II would be 40 percent. However, if these same grant applications requested \$500,000, three could be selected in the topic, and the chance of winning increases to 60 percent.

Restrictions

a. Restrictions on Submitting Applications

A Phase II grant application can be submitted only by a DOE SBIR or STTR Phase I awardee, and it must be submitted to the same program as the Phase I award.

b. Restrictions on the Principal Investigator

The primary employment of the Principal Investigator (PI) must be with the small business at the time of award and during the conduct of the proposed research. Primary employment means that more than one-half of the PI's time, but not less than 20 hours (average) per week, is spent in the employment of the small business during the conduct of the project. Primary employment with a small business precludes full-time employment with another organization. However, it is acceptable for the PI to be on an unpaid leave-of-absence from another organization during the conduct of the research project. In addition, the PI is expected to devote to the project a considerable part of his or her time, and in no case less than 5 hours (average) per week for the duration of the project (i.e., the PI must work at least 520 hours on the project). Also, the source of the PI's compensation, for work on the project, must be the small business. Before the grant is awarded, the PI will be required to sign a statement certifying adherence to all of the above requirements. In order to ensure appropriate technical guidance for the project, only one PI will be accepted per project; co-PIs will not be accepted. **Changes in PIs after an award is made are strongly discouraged and will not be routinely granted.**

c. Restrictions on the Level of Small Business Participation

SBIR - At least 50 percent of the research or analytical effort must be performed by the small business. Accordingly, at least 50 percent of the funding requested on the budget form (line K of the Grant Application Budget form), excluding any purchased or leased equipment, materials, and supplies (whether purchased by the applicant or a subcontractor), must be allocated to the small business. A "Level of Effort" worksheet is provided to assure compliance with this requirement.

STTR - STTR awards will be made to small businesses for cooperative R&D to be conducted jointly with a non-profit research institution. At least 40 percent of the work must be performed by the small business, and at least 30 percent of the work must be performed by a **single** research institution. The research institution must be the same as that used in the Phase I research, except under very unusual circumstances, which must be explained and approved by the Technical Project Manager. Accordingly, at least 40 percent of the funding requested on the budget form (Line K of the STTR Grant Application Budget form), excluding any purchased or leased equipment, materials, and supplies (whether purchased by the applicant, the research institution, or a subcontractor), must be allocated to the small business, and at least 30 percent must be allocated to a research institution. A "Level of Effort" worksheet is provided in the Budget section to assure compliance with this requirement.

PHASE II GRANT APPLICATION FORMAT

There is no page limitation for Phase II; however, excessive length may dilute the impact of the important components of your application, and should be avoided. The Phase II grant application should include the following:

Introductory Pages

- a. Cover Page - Complete the Cover Page as the first page of your grant application. Please do not use plastic or other heavy material covers or bindings as they slow processing of your application.

To be eligible to receive a Phase II grant, an answer of "Yes" to Certifications 1 and 2 is required. If the DOE learns from any source that any of these certifications were completed fraudulently, appropriate authorities will be notified for possible criminal investigations.

Signatures of the small business certifying official and the principal investigator are mandatory.

- b. Project Summary – The SBIR/STTR office is in the process of editing all of the Phase I abstracts and will publish them on our website <http://www.science.doe.gov/sbir> no later than January 31, 2003. Please use the latest version when updating your Project Summary form for your Phase II application and include the new project summary as

page 2.

The purpose of the project summary is to communicate the overall sense of the project, not every step of the work plan or every accomplishment in Phase I. Statements of future applications or benefits belong in the section on Commercial Applications and Other Benefits. **Do not use acronyms, abbreviations, first-person references, or any proper names** (including the name of the small business, any subcontractors or institutions, or any trade or product name).

The Department notifies members of Congress of awards in their districts. Therefore, please provide, in clear and concise **layman's** terms, a very brief summary (maximum 2 sentences, 50 words) of the project, suitable for a possible press release from a Congressional office. **Suggested Format:** First Sentence--State the problem being addressed so that the research need is clear. Second Sentence--State what is being done to address the problem.

- c. Table of Contents - Prepare a table of contents identifying each section of your grant application by page number and include as page 3.

Significance, Background Information, and Technical Approach (begin on page 4 of grant application)

- a. Identification and Significance of the Problem or Opportunity, and Technical Approach - Define the specific technical problem or opportunity addressed by your application. Provide enough background information, so that the importance of the problem/opportunity is clear. Indicate the overall technical approach to the problem/opportunity and the part that the proposed research plays in providing needed results.
- b. Anticipated Public Benefits - Discuss the technical, economic, social, and other benefits to the public as a whole, if the project is successful and is carried over into Phase III. Identify specific groups in the commercial sector as well as the Federal government that would benefit from the projected results. Describe the resultant product or process, the likelihood that it could lead to a marketable product, and the significance of the market.
- c. Degree to which Phase I has Demonstrated Technical Feasibility - Discuss the purpose of your Phase I research, the research carried out, the research findings or results, and your estimate of technical feasibility. In particular, address the degree to which the Phase I objectives have been met. **Attach a copy of your Phase I application to each copy of the Phase II application.**

The Phase II application should be a self-contained document and should include all relevant information concerning the research carried out in Phase I. Attached or referenced multi-media materials (such as CDs, websites, DVDs, and audio tapes) will not be reviewed. The Phase I final report is a separate deliverable item and it is not considered part of the Phase II application. It will not be considered in the Phase II

evaluation unless the material is duplicated or paraphrased and incorporated in or made an attachment to the Phase II application.

The Phase II Project

- a. Technical Objectives - State the specific technical objectives of the Phase II research and development.
- b. Work Plan - Provide an explicit, detailed description of the Phase II research approach and work to be performed. Indicate what will be done, by whom (small business, subcontractors, or consultants) where it will be done, and how the work will be carried out.

Link the work plan to the objectives of the proposed project. Discuss methods planned to achieve each objective or task explicitly and in detail. Be sure to address how the research or research and development effort could lead to a product, process, or service in Phase III. Show how the management direction and control of the SBIR/STTR project will be assured. Regardless of the proportion of the work or funding of each of the performers under the grant, the small business is to be the primary grantee with overall responsibility for its performance. **This section should be a substantial portion of the total grant application.**

- c. Performance Schedule - Briefly describe the important milestones and the estimated amount of time for completing each task described in the work plan.
- d. Principal Investigator and other Key Personnel - The Principal Investigator (PI) is the key individual designated by the applicant to direct the project. The Principal Investigator must be knowledgeable of the critical technical aspects of the grant application and be capable of leading the research effort in the United States. A resume of the PI, including a list of relevant publications (if any), must be included. Because the DOE's evaluation of the grant application is critically dependent on the qualifications of the PI, changes in the PI after award selection are strongly discouraged. The original PI is expected to complete work on the grant. Requests for changes in PI will be closely scrutinized and not routinely granted. Identify other key personnel involved in the Phase II effort including information on directly related education and experience. List relevant publications by key personnel.
- e. Facilities/Equipment - Describe available equipment and physical facilities necessary to carry out the Phase II effort. Equipment is defined as an article of tangible, nonexpendable, personal property, including exempt property, charged directly to the award, having a useful life of more than one year and an acquisition cost of \$5000 per unit or more. Items of equipment to be leased or purchased must be described and justified in this section. Title to equipment purchased with SBIR/STTR funds is provisionally vested with the grantee and may be permanently vested with the grantee at the DOE's option. Awardees wishing to obtain title should contact their Contract Specialist prior to project completion for the procedure to follow.

If the equipment, instrumentation, and facilities are not the property of the applicant and are not to be purchased or leased, the source must be identified and their availability and expected costs specifically confirmed in this section. A principal of the organization that owns or operates the facilities/equipment, must certify regarding the availability and cost of facilities/equipment and any associated technician cost; a copy of this certification must be submitted as part of the grant application. Small businesses can get credit for obtaining this equipment as in-kind Phase II commercial contribution (as described in Section h.) During grant negotiations, small businesses may be asked to justify these values.

To the extent possible in keeping with the overall purposes of the program, only American-made equipment and products should be purchased with financial assistance provided under the Phase II awards.

- f. Consultants and Subcontractors - Involvement of universities, national laboratories, or other consultants is permitted provided the work is performed in the United States. If consultants and/or subcontractors are to be used, this section must identify them **AND** contain a "Letter of Commitment" that they have agreed to serve in the manner and to the extent described in the Work Statement section of the grant application. This letter **must include a breakdown of costs**, be signed, certifying their availability and salary (for consultants), and must be submitted as part of the grant application. Note: Consultants are not employees of either the small business or any subcontractor.
- g. Commercialization Record - The grant application should present the record of the small business in commercializing Phase II projects in SBIR or STTR, or other comparable research projects (**do not include SBIR or STTR Phase I projects**). Prepare a table which includes the following information: the title of the project, the source of funding (the Federal agency, if it is an SBIR or STTR Phase II project), the year of award, the total sales of the resulting product or service (include sales by your company or any licensee, and identify the licensee), and the total revenues obtained for pursuit of commercialization (identify sources of these revenues).
- h. Phase II Funding Commitment (Commercial Contribution)- Applicants are strongly encouraged to submit a Phase II commitment from private sector or non-SBIR/STTR funding sources which will be considered as part of the evaluation criterion on Impact but is not required to obtain a grant. To receive full credit, the Phase II funding commitment must state that an additional 20 percent or more of the Phase II funding requested from the DOE will be provided to or by the small business concern during the Phase II project period. Partial credit will be given for commitments that are less than 20 percent. The funds must be used for research or research and development in an expanded Phase II project (i.e., expanded by the amount of the commercial contribution), and the funds cannot be contingent on meeting technical objectives in Phase II. In-kind contributions are allowed; however, the applicant or donor must estimate the dollar value of any in-kind contribution. Letters of interest or intent from third parties are not considered to be commitments, and these will receive no credit under this evaluation criterion. The Phase II commitment must be submitted with the Phase II grant application and described or

referenced in the text of the proposal. The amount of the commercial contribution should NOT appear on the budget page.

- i. Phase III Follow-On Funding Commitment - Applicants may submit a Phase III commitment which will be considered as part of the evaluation criterion on Impact. To get full credit, the Phase III follow-on funding commitment must provide that a specific amount of funds (at least one-half of that requested from DOE for Phase II) will be made available to or by the small business. Partial credit may be given for smaller commitments. The commitment must be signed by a person with the authority to make it, indicate when the funds will be made available, and contain specific technical objectives which, if achieved in Phase II, will make the commitment exercisable by the applicant. If the commitment is firm regardless of technical objectives achieved, it should so state. The commitment may include: (1) third party financing; (2) self-financing (in which case the proposing small business must demonstrate the ability to provide the Phase III funding); (3) state or local government financing; and (4) federal funding. In-kind contributions are allowed; however, the applicant or donor must estimate the dollar value of any in-kind contributions. The Phase III funding cannot be contingent on obtaining a patent because of the length of time this process requires. Letters of interest or intent from third parties are not considered to be commitments, and these will receive no credit under this evaluation criterion. The Phase III commitment must be submitted with the Phase II grant application and referenced in the text.

Budget

Complete the SBIR or STTR Grant Application Budget form for Phase II, which can be found in the Required Forms section. This should be the last page of the grant application. No other budget form is acceptable. An example of a completed budget form can also be found in the Required Forms section.

- a. **A minimum of 50 percent (for STTR: 40 percent by the small business and 30 percent by a single research institution) of the funded research or analytical effort must be performed by the proposing small business. The funded research or analytical effort is defined as the total requested funding minus the cost of any purchased or leased equipment, materials, and supplies (whether purchased by the applicant or a subcontractor).** A "Level of Effort" worksheet is provided in the Required Forms section to assure compliance with this requirement. This worksheet should be completed and should follow the budget form in the grant application. An example of a completed worksheet is also provided. Applicants are encouraged to contact the SBIR/STTR office if there are questions about this worksheet (301-903-0569).
- b. Identify all small business personnel (Section A of budget form) and consultants (Section B) participating in the Phase II project on the budget form.
- c. List any equipment to be leased or purchased by the applicant in Sections C or D. (If equipment is to be leased or purchased by a subcontractor, the cost should be

included in the subcontract and the equipment must be itemized on a separate ABudget Explanation Page.® All equipment will be carefully reviewed relative to need and appropriateness for the research or R&D proposed. (Equipment is defined as an article of tangible nonexpendable personal property including exempt property charged directly to the award having a life of more than one year and an acquisition cost of \$5000 per unit or more). Title to equipment may be vested with the grantee.

- d. Travel funds, Section E, must be justified and related to the needs of the project. Travel expenses for technical conferences are not permitted unless the conference directly relates to the project (e.g., to present results of the project.) **Foreign travel is not an appropriate expense.**
- e. In Section F, include only items which are to be acquired from outside the small business. On line F5, identify the amount of subcontract work necessary for the proposed project. A detailed budget for each subcontract should be described on a separate "Budget Explanation Page."
- f. Phase II grant funds may be used to pay up to \$10,000 in filing fees and related filing expenses for the first U.S. patent for subject inventions developed under the Phase I or Phase II projects. If this cost is included in the budget, it must be entered on the budget page in Section F, "Other Direct Costs." In the event some or all of the amount listed is not expended on a patent filing, the remaining funds may be budgeted to other allowable project costs.
- g. The Phase II application budget can include a profit or fee for the small business, and this should appear on line J.
- h. The sum of lines I and J should represent the entire cost of the proposed project. Line K must match the amount requested on the cover page, and should not exceed \$750,000 (\$500,000 for STTR).
- i. Tuition costs are not considered research or research and development. Accordingly, they are not acceptable costs and should not be included in the budget.
- j. Only allowable costs will be paid by the government. These are available from the World Wide Web at site <http://www.arnet.gov/far/loadmain.html> or a copy may be purchased from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7954. Telephone (202) 512-1800.

METHOD OF SELECTION AND EVALUATION CRITERIA

The Phase II grant application must contain enough information on progress accomplished under Phase I, by the time of Phase II grant application submission, to enable an evaluation of the

project's promise if continued into Phase II. The Phase II grant application will be evaluated for scientific and technical approach and commercial potential based on the following criteria:

1. **Strength of the scientific/technical approach** as evidenced by (1) the strength and innovativeness of the overall idea and approach for the combined Phase I/Phase II project, (2) the significance of the scientific or technical challenge, and (3) the thoroughness of the presentation.
2. **Ability to carry out the project in a cost effective manner** as evidenced by (1) the qualifications of the Principal Investigator, other key staff, and consultants, if any, and the level of adequacy of equipment and facilities; (2) the soundness and level of adequacy of the work plan to meet the problem or opportunity; (3) with regard to the Phase I objectives, the degree to which Phase I has proven feasibility of the concepts; and (4) the degree to which the DOE investment in the project would be justified by the level of proposed research effort.
3. **Impact** as evidenced by (1) the significance of the technical and/or economic benefits of the proposed work, if successful, (2) the likelihood that the proposed work could lead to a marketable product or process, and (3) the likelihood that the project could attract further development funding after the SBIR project ends. The following evidence of commercial potential will also be considered: (a) the small business concern's record of commercializing SBIR/STTR or other research, (b) the existence of Phase II funding commitments from the applicant, other private sector, or non-SBIR/STTR funding sources, and (c) Phase III follow-on funding commitments for the subject of the research.

The above three criteria will be given approximately equal weight. In addition, for the Impact criterion, the three components of commercial potential ((a), (b), and (c) above) will be given approximately equal weight. Together, these three components of commercial potential will count as one-half of the Impact criterion. (Therefore, the three components of commercial potential represent approximately one-sixth of the total score; correspondingly, each individual component of commercial potential represents approximately one eighteenth of the total score.)

Phase II grant applications will be subject to a detailed technical evaluation by experts, both inside and outside the Government. The DOE will not fund any grant application for which there is reservation with respect to any of the three evaluation criteria, as determined by the review process. In addition, because the DOE supports only high quality research and development, grant applications will be considered candidates for funding only if they receive strong endorsements with respect to at least two of the three criteria.

Those grant applications that are candidates for funding are divided among the DOE program areas according to the technical topic to which the application was submitted in Phase I. The programs then rank their candidate grant applications based on the evaluation criteria and on such factors as program balance and needs. Selections are made from this ranked list until the program's SBIR/STTR Phase II budget is exhausted. (A program's SBIR/STTR Phase II budget is assigned by the SBIR/STTR Program Manager and is proportional to a program's contribution to the SBIR/STTR program.)

CONSIDERATIONS

Awards

It is anticipated that one-third to one-half of the Phase I awardees will receive Phase II awards, depending on the results of the Phase I effort and the availability of funds. Phase II funds will be allocated over a two-year period: half of the funds will be allocated in the first year, and half in the second year.

In order to begin the project immediately after selection and notification, Phase II grants will be funded for the first 120 days (for one-sixth of the requested amount) by exercising an option to extend the Phase I grant. During this period, the Phase II grant will be negotiated and finalized.

Certifications

If selected for award, you may be required to complete the following certifications. They may be viewed and downloaded from our website <http://www.science.doe.gov/sbir>. The Contracting Office will request any required certifications during award negotiations. DO NOT send them as part of your Phase II application.

- Certifications Regarding Lobbying; Debarment, Suspension, and Other Responsibility Matters; and Drug-Free Workplace Requirements
- Disclosure of Lobbying Activities
- Assurance of Compliance—Nondiscrimination in Federally Assisted Programs
- PI Certification

Reports

Those receiving Phase II awards will be required to provide semi-annual reports during Phase II, and a final report at the completion of the project. For three years after completion of the project, grantees will also be required to provide reports on: (1) the sources and amounts of any non-Federal funding or non-SBIR/STTR Federal funding to support commercialization or further development of the research funded under this grant, and (2) any sales, by grantees or their licensees, of products or services derived from the technology developed in the Phase II project.

Financial Management for Phase II

If the grantee intends to submit a Phase II grant application, it should begin the process of assuring a satisfactory financial management system **in advance of the submission of the application**. At a minimum, the system must provide for: (1) accurate, current, and complete disclosure of the financial results of each project; (2) records that identify the source and application of funds for the financially assisted project, including information pertaining to Federal awards, authorizations, obligations, unobligated balances, assets, outlays, income, and liabilities; (3) effective control over and accountability for all such funds, property (including

exempt property), and assets, and assurance that they are used solely for authorized purposes; (4) comparison of actual expenditures with approved budget amounts for each grant; (5) procedures for determining the reasonableness, allowability, and allocability of costs in accordance with the provisions of the applicable Federal cost principles; (6) accounting records that are supported by source documentation, such as canceled checks, paid bills, payrolls, contract documents, etc.; and (7) a systematic method to assure timely and appropriate resolution and settlement of audit findings and recommendations pertaining to subcontractors.

A review may be performed of a recipient's financial management system as part of a pre-award review or at any time subsequent to award. To the extent possible, readily available sources of information, such as previous audit reports, will be relied upon to make any pre-award assessment of the applicant's financial management system. Additional information will be sought from the recipient, or an on-site pre-award review will be performed, only if it is necessary to assure prudent management of DOE funds. The Department of Energy assumes no liability for costs incurred in the establishment of a financial management system sufficient for a Government grant.

SUBMISSION OF GRANT APPLICATIONS

The following must be submitted:

- Original application, which includes:
 - a. Signed Cover Sheet (Appendix A),
 - b. Project Summary (Appendix B),
 - c. Main Text,
 - d. Signed Budget Form (Appendix C),
 - e. Budget Explanation Page,
 - f. Copy of Phase I Application
- 7 additional copies of the application
- 4 additional copies of the Project Summary (Appendix B)
- 1 Level of Effort Worksheet (Appendix D)

Grant applications must be addressed to:
SBIR/STTR PROGRAM MANAGER
SC-32/GERMANTOWN BUILDING
U.S. DEPARTMENT OF ENERGY
1000 INDEPENDENCE AVENUE, S.W.
WASHINGTON, D.C. 20585-1290

Phase II grant applications **HAND CARRIED** by the applicant or any special courier **including Federal Express** must be delivered to:

SBIR/STTR PROGRAM MANAGER, SC-32
U.S. DEPARTMENT OF ENERGY
19901 GERMANTOWN ROAD
GERMANTOWN, MD 20874-1290

Note: No personally delivered submissions will be accepted at the 1000 Independence Avenue, SW, Washington, DC location.

Due to increased and changing building security procedures, applicants who plan to hand carry their grant applications to the DOE Germantown address are advised to call (301) 903-1414 several days ahead to obtain specific delivery instructions.